# Dermaptera and Orthoptera Found in the Vicinity of Miami, Florida, in March, 1915—(Part II).

By Morgan Hebard, Philadelphia, Pa.

(Plate XX.)

Tettigoniidae.

**Arethaea phalangium** (Scudder). Southside, Miami, III, 16, 1915, (H.; undergrowth of pine woods), 1 very small juv.

This tiny specimen (length 2.8 mm.), with its very long limbs and antennae, looked like a bit of greenish white fluff.

**Stilpnochlora marginella** (Serville). Brickell's Hammock, Miami, III, 5, 1915, (H.; beaten from heavy shrubbery in dense jungle), 1 juv. ♀.

The length of this immature individual is 14.2 mm.

**Scudderia texensis** Saussure and Pictet. Southside, Miami, III, 6, and 16, 1915, (H.), 2 ♂, 2 juv. ♂, 3 juv. ♀, 1 very small juv.

This species is widely distributed and locally not uncommon in the undergrowth of the pine woods. Four instars are represented by the immature material before us.

**Phrixa maya** Saussure and Pictet. Brickell's Hammock, Miami, III, 5, 1915, (H.; beaten from heavy shrubbery in dense jungle), 1 very small juv.

Careful and long continued work on two days, including many hours constant beating, secured this single small specimen (length 8 mm.) at a point but a short distance from the spot at which Mr. Wm. T. Davis captured an adult male on September 22, 1913, the first record for the genus and species from the United States.[12] In spite of the immature condition of the present specimen, the distinctive generic features are readily recognizable and the adult from the same spot fixes satisfactorily the specific identity as well.

The beating work necessary to secure this specimen was particularly trying, as during the entire time the only other specimens of Orthoptera secured were the immature example of *Stilpnochlora marginella* recorded above and a very small

[12] Recorded by Wm. T. Davis, Jour. N. Y. Ent. Soc., XXII, p. 197. (1914).

immature specimen of a Tettigoniid genus, which we believe has not yet been recorded from this region but which we can not determine from the material at hand.

**Amblycorypha floridana floridana** Rehn and Hebard. Virginia Key, III, 11, 1915, (H.; beaten from luxuriant vegetation), 1 very small juv. Cape Florida, Key Biscayne, III, 12, 1915, (H.; luxuriant vegetation in clearing), 2 juv. ♀.

The Cape Florida specimens have been bred; the larger when taken, reached maturity March 22; the other, which was very small when taken, became adult May 13.

**Amblycorypha uhleri** Stål. Southside, Miami, III, 6, 1915, (H.; undergrowth of pine woods), 1 juv. ♂.

**Microcentrum rhombifolium** (Saussure). Miami, III, 4, 1915, (H.; on shrubbery, stridulating at night), 2 ♂.

This insect was not uncommon about the town in the trees and shrubbery, as could be determined on warm evenings by the frequently heard stridulations. On nights when the temperature fell at dusk below 65° (normally an infrequent condition at Miami, but the usual occurrence at the time the collections here studied were made) all Orthopteran stridulations ceased.

**Microcentrum rostratum** Rehn and Hebard. Southside, Miami, III, 6, 1915, (H.; undergrowth in pine woods near hammock where occasional low green bushes were to be found), 1 ♀, ♂.

**Belocephalus sabalis** Davis. Miami, VII, 11 and VIII, 19, 1904, (W. S. Dickinson), 2 juv. ♀. [Hebard Cln.].[13] Southside, Miami, III, 6, 1915, (H.; undergrowth in pine woods), 2 very small juv. ♀

One of the specimens from Southside has been kept alive and is flourishing on a diet principally composed of lettuce. Its actions show how absolutely nocturnal the species is; this

[13] Two females recorded from Miami and Chokoloskee, as *subapterus* (the only species of the genus at that time described) by Rehn and Hebard, Proc. Acad. Nat. Sci. Phila., 1905, p. 44. (1905.) can at the present moment not be found. There is little doubt that these records are erroneous, as that species is not known and is probably not present in extreme southern Florida. The specimens probably represent this, the most generally distributed species in this region. The female from Miami was from the same collection as the immature females here recorded.

specimen resting rigid in some concealed position during the day, with cephalic limbs and antennae directed straight forward and median and caudal limbs straight backward, but at night moving actively about and extremely alert and rapid in its movements.

We have before us two large immature females of this species taken by E. A. Schwarz at Cocoanut Grove, Florida, in May, 1887, and two adult brown females taken by the same collector during that year in Dade County. The female of this species closely resembles the male in all features common to both sexes, the ovipositor is decidedly shorter than in *B. subapterus* and is weakly upcurved. The measurements of these specimens are: length of body 34.2 and 39.5, of vertex from tooth to tip 3.1 and 3.3, of pronotum 9. and 9.9, of exposed portion of tegmen 1.8 and 2.2, of caudal femur—and 21.8, of ovipositor 15.2 and 16.2, width of tegmen 2.3 and 2.6 mm.

**Orchelimum concinnum** Scudder. South of Brickell's Hammock, Miami, III, 3, 1915, (H.; very few juv. in salt marsh), 1 very small juv. ♀.

The very small immature examples seen were probably the very first of this species to appear. In July, the marshes of this region swarm with the young of this species.

**Conocephalus gracillimus** (Morse). Southside, Miami, III, 6 and 16, 1915, (H.; locally not scarce in heavier patches of low undergrowth and grasses in the pine woods), 9 ♂, 1 ♀, 2 juv. ♀.

Of the above series the adult female alone has the face, lower portions of the lateral lobes of the pronotum, pleura, ventral portion of abdomen, basal half of ovipositor and the tibiae brilliant green (Scheele's green), the other specimens have these portions isabella color varying to yellowish olive.

**Odontoxiphidium apterum** Morse. Miami Beach, III, 12, 1915, (H.; one specimen in beach vegetation back of strand), 1 very small juv. Southside, Miami, III, 6, 1915, (H.; beaten from undergrowth of pine woods), 1 very small juv.

**Atlanticus glaber** Rehn and Hebard. Southside, Miami, (H.; rare but widely distributed through undergrowth of pine woods), III, 6, 1915, 4 juv. ♂, III, 16, 1915, 1 ♂, 3 juv. ♂.

These immature individuals were kept alive and all but one successfully reached maturity, the dates being April 12, 13,

17, 18, 20, 22 and 24. Two specimens were, when taken, in the next to the last instar preceding maturity; these were the last two to become mature. The species was very scarce but widely distributed, all of the work undertaken on two days in the pine woods being with the main purpose of securing this insect.

GRYLLIDAE.

**Scapteriscus abbreviatus** Scudder. Musa Isle, III, 4 and 10, 1915, (H.), 3 ♂, 5 ♀, 16 juv. in four last instars.

The soft fat abdomen of this species is in life whitish and distinctly paler than the hard portions of the insect.

The present series was dug out of sandy soil in a grape fruit grove during the afternoon. Individuals were found to burrow but a few inches beneath the surface of the ground, coming to the surface to feed beneath decaying grape fruit. Scarcely any were seen in the burrows frequently disclosed upon overturning grape fruit and these instantly disappeared in the burrows. The series was taken by rapidly overturning the soil in the vicinity of such debris and also in areas of scant weeds and about the roots of grape fruit shoots. In many places nothing was found, while in a few spots a number of individuals would be exposed, though everywhere the ground was tunnelled by these insects.

Everywhere about Miami in sandy soil the insect, which is locally called "cricket-mole", is said to do decided damage, particularly to farm truck. One of the older inhabitants informed the author that he remembered when these insects were not found in this region and that they had been accidentally introduced in manure from Key West.

**Ellipes minuta** (Scudder). South of Brickell's Hammock, III, 3, 1915, (H.; scarce in salt marsh near border), 1 ♂, 1 ♀.

These individuals have the wings concealed by the tegmina.

**Cryptoptilum antillarum** (Redtenbacher). North edge of Brickell's Hammock, Miami, III, 4, 1915, (H.; under bark of live oak while searching for *Obligacanthopus prograptus*), 1 ♀, 1 juv. ♀ in last instar. Cape Florida, Key Biscayne, III, 12, 1915, (H.; beaten from luxuriant vegetation in clearing), 1 juv. ♂ in early instar.

**Cryptoptilum trigonipalpum** Rehn and Hebard. Brickell's Hammock, Miami, III, 15, 1915, (H.), 1 ♂, 1 ♀, 2 juv. ♂ in intermediate instar, 2 juv. ♀ in two intermediate instars.

This entire series was found on a chilly morning under the bark of *Exothea paniculata* at about ten feet from the ground, about which tree trunk were touching leaves from an adjacent shrub. Under the loose bark of the same tree *Oligacanthopus prograptus* and *Orocharis gryllodes* were found.

**Cycloptilum zebra** Rehn and Hebard. North edge of Brickell's Hammock, Miami, III, 4, 1915, (H.), 2 juv. ♂, 1 juv. ♀, in two early instars.

These specimens were found in low vegetation about the foot of live oaks in an open grove, while searching on these trees for *Oligacanthopus prograptus.*

**Oligacanthopus prograptus** Rehn and Hebard. (Pl. XVIII, figs. 2A, 2B.) North edge of Brickell's Hammock, Miami, III, 4, 1915, (H.), 1 juv. ♂, 1 juv. ♀. Brickell's Hammock, Miami, III, 4, 5 and 15, 1915, (H.), 7 ♂, 5 ♀, 20 juv. ♂, 18 juv. ♀. South edge of Brickell's Hammock, Miami, III, 3, 1915, (H.), 1 ♂, 1 ♀, 1 juv. ♂, 2 juv. ♀.

The present series of fifty-seven specimens was taken by peeling off loose bark on two typical trees of the hammock jungle, *Exothea paniculata* and *Coccolobis laurifolia,* and on live oaks, *Quercus virginiana,* a few of which latter trees are found scattered through the pine woods on the south border of the hammock and groves of which are distributed along the north edge of the hammock. Often several trees would be thoroughly examined without success, but usually two or three specimens would be found and rarely six or seven, on the same tree. When revealed, the tiny insects either fell with the bark or remained usually motionless when they could easily be made to jump into the beating net, which was held below the spot under investigation to catch the bark and any specimens which might fall with it. Without such use of a net the species would prove very difficult to capture. The species is apparently wholly nocturnal and individuals probably seldom leave the tree trunks. This latter is indicated by the peculiar silvery general coloration of the insects, mottled and speckled with dark brown, which blends perfectly with the bark of the trees upon which they are found, but which would cause them

to be conspicuous under many other environmental conditions. The present species was hitherto known only from the unique female type, taken from under a sign on a live oak on the north border of Brickell's Hammock by the author on February 16, 1904.[14]

*Allotype*: ♂ ; Brickell's Hammock, Miami, Florida, March 5, 1915. (Hebard; under bark of *Exothea paniculata.*) [Hebard Collection.]

*Description of Allotype.* Very similar in size and form to the type. Pronotum with dorsum transversely very gently arcuate, curving sharply laterad, cephalic and caudal width equal, this dimension slightly less than length, lateral outlines of disk weakly convex, cephalic margin weakly concave, caudal margin very weakly convex and nearly straight. As in the female sex, no tegmina or wings are developed. Every portion of the insect is heavily clothed with scales excepting the eyes, cephalic portion of the face, mouth-parts and antennae. Titillatores represented by minute, elongate projections which are cylindrical, straight, tapering distad gently to apex which reaches above depressed distal portion of roughly shield-shaped supra-anal plate. Sub-genital plate transverse, with distal margin broadly arcuate. Color pattern distinctive as in the type, with which the allotype agrees in all other characters given in the original description.

*Coloration.* As in the type, the series before us shows the four parallel vertical dark bars on the vertical cephalic face of the interantennal protuberance, some specimens have these bars unusually heavy but in no case do they fuse. The absence of some of the scales in the type made the normal color pattern, produced by the light and dark scales, indistinguishable. This is found to be constant in the series before us and is illustrated by the accompanying figure of the allotype. We also figure the cephalic aspect of the head of this specimen, as this figure of the type accompanying the original description is very badly out of proportion. These features of coloration are found the same in the five instars of the immature condition before us.

*Measurements (in millimeters)*

| | Length of body | Length of pronotum | Caudal width of pronotum | Length of caudal femur | Length of ovipositor |
|---|---|---|---|---|---|
| *Allotype* ♂, ..... | 6.4 | 1.7 | 1.6 | 3.8 | .... |
| Topotypic ♂, (7)... | 6.2-6.7 | 1.5-1.7 | 1.4-1.6 | 3.7-4.2 | .... |
| TYPE, ♀ ..... | 6[15] | 1.5 | 1.4 | 3.7 | 2.5 |
| Topotypic ♀, (6)... | 6.-6.7 | 1.6-1.7 | 1.6-1.7 | 4.1-4.3 | 2.7-3 |

[14] Fully described by Rehn and Hebard, Proc. Acad. Nat. Sci. Phila., 1912, p. 219. (1912.)

[15] With the original description this measurement is given as 5.8 mm. as the authors supposed that the head was carried with dorsal surface declivent distad. We find that the head is carried horizontally, with occiput partially concealed by the pronotum but with distal portion of occiput, interantennal space and dorsum of vertex, in the same plane with the dorsum of the pronotum.

In the immature series, the last instar preceding maturity is represented by 7 ♂, 8 ♀ (length of body averaging about 5.6, of ovipositor 1.7 mm.); the previous instar by 5 ♂, 7 ♀ (length of body averaging about 4.7, of ovipositor .7 mm.); the second from the last instar by 8 ♂, 2 ♀ (length of body averaging about 4.3 mm., ovipositor valves joined but not extruded); the third from the last instar by 2 ♂, 2 ♀ (length of body averaging about 4 mm., ovispositor valves not yet joined), and fourth from the last instar by 2 ♀, (length of body averaging about 3.3 mm., ovipositor valves not yet joined).

**Hygronemobius alleni** (Morse). Mangrove swamp, edge of Brickell's Hammock, Miami, III, 15 and 16, 1915, (H.; bare muck and tidal litter in red mangrove swamp), 1 ♂, 7 ♀, 4 juv. ♂, 6 juv. ♀.

This series, which constitutes the first record for the genus from the United States, has recently been recorded and fully commented upon by the present author.[16]

The immature individuals represent three instars; the instar preceding maturity by 2 ♀ (length of body averaging approximately 4.8 mm.), the previous instar by 2 ♂, 2 ♀ (length of body averaging approximately 3.7 mm., male tegmina large and rounded, wings minute) and the second from the last instar by 2 ♂, 2 ♀ (length of body averaging approximately 3.4 mm., male tegmina and wings very small and equally projecting).

**Nemobius ambitiosus** Scudder. North edge of Brickell's Hammock, Miami, III, 4, 1915, (H.; moderately numerous in debris under low vegetation along borders of live oak groves), 1 ♂, 1 juv. ♂.

**Nemobius cubensis cubensis** Saussure. Cape Florida, Key Biscayne, III, 12, 1915, (H.; bare muck in red mangrove swamp), 2 ♂, 1 ♀.

These specimens are brachypterous and unusually small for the species. Though very dark in general coloration with limbs much mottled, the female is further unusual in having the exposed portion of the dorsal surface of the abdomen bearing four rows of distinct pale yellowish spots, which marking is the normal condition in the otherwise very distinct *N. carolinus* and its races.

**Nemobius carolinus carolinus** Scudder. Miami Beach, III, 12, 1915, (H.; only Orthoptera seen after long continued search in red mangrove swamp, on bare muck under roots), 1 ♂,

[16] Ent. News, XXVI, p. 195. (1915.)

1 ♀. Virginia Key, III, 11 and 15, 1915, (H.; locally common in dense red mangrove swamp on sodden leaves under a labyrinth of roots), 10 ♂, 7 ♀, 7 juv. ♂, 8 juv. ♀. Cape Florida, Key Biscayne, III, 12, 1915, (H.; only specimens seen on bare muck of red mangrove swamp), 1 ♀, 1 juv. ♀.

This series is exceptionally dark in general coloration, showing the response to the black muck environment of the red mangrove swamps. In the females, the abdominal color pattern, usually so distinct, has reached the maximum of recession we have observed in this race, the pale spots being wholly obscured and so reduced that only traces of them may be detected with a hand lens. As a result these specimens bear a close superficial resemblance to typical *N. cubensis cubensis,* from which species they are not only separated by several very important characters but also may be further distinguished by the paler and more unicolorous limbs and from the normal condition of that race by the maxillary palpi which in *carolinus* have a great portion of the terminal and penultimate joints very pale. All of the specimens are brachypterous but one of the females from Virginia Key has elongate tegmina. The specimens from Miami Beach are large, the other adults are unusually small excepting two males from Virginia Key which are of medium size. Though abundant locally at Virginia Key, individuals were found to be exceedingly active and difficult to capture, much more so than *Hygronemobius alleni,*[17] but considerable efforts were made to secure a large series owing to the evidently abnormal coloration of the insects.

**Anurogryllus muticus** (De Geer). Brickell's Hammock, Miami, III, 5 to 15, 1915, (H.; trapped, molasses jar), 1 large juv. ♂.

This species is here recorded from a definite locality in Florida for the first time.

**Gryllus assimilis** (Fabricius). Musa Isle, III, 4, 1915, (H.; under board in pen), 1 ♂.

This specimen is macropterous and represents the *pennsylvanicus* variant of the species.

[17] This more tropical form may, however, be more decidedly affected by cold weather such as was experienced at the time these specimens were taken.

**Gryllodes sigillatus** (Walker). The characteristic, very rapid, stridulation of this species was heard in buildings both at Miami Beach and Miami, but no efforts were made to capture specimens.

**Anaxipha scia**[18] new species (Pl. XX, figs. 3A-3D).

Closely related to *A. vittata*,[19] differing in the uniform dark coloration, proportionately longer and more attenuate limbs and spines of the caudal femora. The tegminal cross-veinlets of the female are also more distinct than in that species or in the closely related *A. pulicaria*.

Type: ♀ ; red mangrove swamp on edge of Brickell's Hammock, Miami, Florida, March 16, 1915. (Hebard; among roots above black muck, sodden leaves and tidal litter.) [Hebard Collection, Type No. 404.]

*Description of Type.* Size small, form rather slender for the genus (similar to that of *vittata* but with limbs proportionately longer). Head, pronotum and ovipositor as in *vittata*. Limbs more elongate and proportionately more slender than in that species. Caudal tibiae with dorsal margins supplied with three pairs of long alternating spines which are all distinctly longer than the spaces intervening between their bases. Distal extremity of caudal femora supplied with three small external and two decidedly larger internal spurs; of the external three the dorsal is so small that it can scarcely be detected with a hand lens, while the median is the longest and about half as long as the ventro-internal, which is about three-fifths as long as the dorso-internal spur (in these characters agreeing with *vittatus* but with tarsi longer). Caudal metatarsus elongate, one and one-quarter times as long as the longest tibial spur and equalling in length the longest tibial spine. Tegmina much as in *vittata* but with cross-veinlets few but distinct; wings not apparent. Coloration distinctive.

*Allotype*: ♂ ; same data as type excepting date, March 15, 1915.

*Description of Allotype.* Agrees with type in all characters common to both sexes. Tegmina similar to those of *vittata* and *pulicaria*.

*Measurements (in millimeters)*

| | Length of body | Length of pronotum | Caudal width of pronot. | Length of tegmen | Length of caudal femur | Width of cau. fem. | Length of caudal tibia | Length of caudal metatarsus |
|---|---|---|---|---|---|---|---|---|
| *Allotype*, ♂ | 5.2 | 1.1 | 1.7 | 4.5 | 4.7 | 1.3 | 4.3 | 1. |
| Type, ♀ | 5.2 | 1.1 | 1.6 | 3.3 | 4.7 | 1.2 | 4.4 | 1. |

[18] From σκιά = a shadow. In reference to the dark habitat of this obscure species.

[19] In regard to the generic status of this species, see a full discussion in a forthcoming paper by Rehn and Hebard.

The width of the dorsal field of the male tegmen is 2 mm.; in the female the ovipositor length is 2.7 mm.

*Coloration.* Identical in both sexes. General coloration of head and pronotum sepia, the ventral portion of the interantennal protuberance marked with a narrow perpendicular median line of a paler shade (Saccardos umber). Antennae, maxillary palpi, tegmina and limbs Saccardos umber, the caudal tibiae mottled on the dorso-external two-thirds with sepia and a small but distinct spot of the same color disto-dorsad on the internal face at the termination of the swollen proximal portion of the limb. Immature individuals before us are similar but have a more distinct color pattern with a narrow medio-longitudinal and broad postocular pale parallel bars on head and pronotum and with the face pale, showing in sepia the normal color pattern found in the allied species of the genus as well.

In addition to the type and allotype, we have an immature pair before us taken in the same place and on the same dates.

This species was found to be exceedingly scarce in a heavy red mangrove swamp, where individuals were located among the roots of these trees in places which at high tide were more than a foot under water. In such dark situations, where no green thing was to be seen, these sombre little insects were found to be so active in their movements that another adult seen was lost while the adult pair secured was taken only through rare good fortune.

**Anaxipha imitator** (Saussure).[20] (Pl. XX, figs. 4A-4D).

Edge of Brickell's Hammock, Miami, III, 15 and 16, 1915, (H.), 41 ♂, 27 ♀, 3 juv. ♂, 8 juv. ♀, several instars represented.

This species, hitherto known only from Cuba, was found abundantly in the narrow border of sloping ground between the jungle of Brickell's Hammock and the red mangrove swamp. There, on the ground among a litter of the dried leaves of a species of wild coffee, *Psychotria nudata*, individuals were found jumping and flying nimbly about. The insects never flew more than a foot or two from the ground, in flight suggesting numerous species of small tropical roaches. The species appeared to be absolutely limited to this very narrow area which would explain its not being previously known from this region. Immature individuals in all stages and adults were found in about equal numbers. At 11 A. M. on a cloudy

[20] See footnote 19 in re the genera *Anaxipha* and *Cyrtoxipha*, in which latter genus the present species was placed by Saussure.

day with temperature 70°, the few specimens heard stridulating emitted a trilling note, not loud but penetrating; the trills lasting one or one and one-half but occasionally two seconds, with the normal interval between a little less than one second. This song was not nearly as tinkling as that of *Cyrtoxipha gundlachi,* but still pleasant to the ear. Specimens were easily taken owing to the fact that, even if perfectly concealed, they could be easily made to leave their hiding places by stirring about the dead leaves.

*Measurements (in millimeters)*

| | Length of body | Length of pronotum | Length of tegmen | Length of wing | Length of caudal femur |
|---|---|---|---|---|---|
| ♂..... | 5.3-6.2 | .9-1.1 | 5-5.4 | 7.7-8.6 | 4.7-5. |
| ♀..... | 4.7-5.4 | .8-1.1 | 4.4-4.7 | 7.4-7.8 | 4.3-4.7 |

This species is closely related to the tropical American species *teltecus* and *angusticollis* and is a member of a large group of species of the genus, no other of which is known from the United States.

The most striking features of the species are: the broad lateral bands of dark brown which run from the postocular portion of the head across the lateral lobes of the pronotum and include all of the lateral fields of the tegmina and exposed portions of the wings when at rest; the very long wings in both sexes and very ample tegmina in the male; the short and widely separated spines of the caudal tibiae; the long caudal metatarsus and proportionately very short distal tarsal joints, and the maxillary palpi which have the terminal joint expanding weakly in the proximal half, but strongly in the remaining distal portion.

**Cyrtoxipha gundlachi** Saussure. Brickell's Hammock, Miami, III, 4 and 5, 1915, (H.; song heard on all sides after dusk, specimens beaten from foliage), 1 ♂, 2 juv. ♂, 1 minute juv. Virginia Key, III, 11, 1915, (H.; heard everywhere through red mangroves and in strand shrubbery, beaten from bushy scrub near strand), 1 ♂, 1 juv. ♀. Cape Florida, Key Biscayne, III, 12, 1915, (heard abundantly in red mangrove and other heavy leaved trees), none taken.

The very pleasant tinkling song of this species is to be heard almost everywhere on warm evenings about Miami.

**Hapithus agitator quadratus** Scudder. Brickell's Hammock, Miami, III, 3, 4 and 5, 1915, (H.; adults scarce, immature individuals common in luxuriant undergrowth), 3 ♂, 2 ♀, 3 juv. ♂. Virginia Key, III, 15, 1915, (H.; in red mangrove swamp, on sodden leaves among roots), 1 ♀, 1 juv. ♀.

**Orocharis saltator** Uhler. Fort Capron (Viking), V, 4, 1 ♂, [U. S. N. M.]. South of Brickell's Hammock, Miami, III, 3, 1915, (H.; under bark of live oak in pine woods), 1 ♀. Brickell's Hammock, Miami, III, 4, 1915, (H.; under bark of tree), 1 juv. ♀.

The present species was not previously known from south of Thomasville, Georgia, from which locality it was recorded as *O. gryllodes.* All previous records of *O. gryllodes* from the United States apply to this species.[21]

**Orocharis gryllodes** (Pallas).

1772. *Gryllus gryllodes* Pallas, Spicil. Zool., Vol. I, fasc. IX, p. 16, Pl. 1, fig. 10. [♂, Jamaica.]

1844. *Platydactylus saulcyi* Guerin, Iconogr. Règne Anim., Ins., p. 330. [♀, Martinique.]

Unfortunately this distinctive West Indian species has been generally recognized as *O. saulcyi,* which name is an absolute synonym of *gryllodes* of Pallas. Not only does a series of Jamaican material before us bear this out, but the original description and figure show conclusively that Pallas' species was not the insect which Saussure determined as *gryllodes.* Saussure's material from the United States and subsequent records of *gryllodes* from this country have all applied to *O. saltator* Uhler.

Fort Capron (Viking), IV, 15, [U. S. N. M.]. Miami, III, 4, 1915, (H.; small colonies in shrubbery and also in trees about hotels, taken at night), 1 ♂, 2 ♀. Brickell's Hammock, Miami, III, 3, 4 and 15, 1915, (H.; under bark of *Exothea paniculata* and *Coccolobis laurifolia*), 3 ♂, 5 ♀, 2 juv. ♂, 2 juv. ♀; 3 very small juv. (these latter beaten from low vegetation in openings of jungle).

The song of this insect was, next to that of *Cyrtoxipha gundlachi,* the most frequent sound heard on warm evenings. The note is resonant, bāāāāā′, repeated incessantly at irregular intervals of a few seconds. When singing, the males were found perched upon the leaves of heavy bushes with tegmina raised high above their backs; considerable difficulty was experienced in locating individual singers.

**Tafalisca lurida** Walker. Brickell's Hammock, Miami, III, 3, 1915, (H.; beaten from luxuriant undergrowth), 1 small juv.

[21] This species will be fully discussed in a forthcoming paper by Rehn and Hebard.

EXPLANATION OF PLATE XX.

Fig. 3A. *Anaxipha scia* new species. Miami, Fla. Male (*allotype*). Dorsal outline. (X4).

Fig. 3B. *Anaxipha scia* new species. Miami, Fla. Female (TYPE). outline. (X4).

Fig. 3C. The same. Lateral outline of caudal limb, internal. (Greatly enlarged.)

Fig. 3D. The same. Lateral outline of ovipositor. (Greatly enlarged.)

Fig. 4A. *Anaxipha imitator* (Saussure). Miami, Fla. Male. Dorsal outline. (X4).

Fig. 4B. *Anaxipha imitator* (Saussure). Miami, Fla. Female. Dorsal outline. (X4).

Fig. 4C. The same. Lateral outline of caudal limb, internal. (Greatly enlarged.)

Fig. 4D. The same. Lateral outline of ovipositor. (Greatly enlarged.)

## The Number of Generations per Year of the Mud-Daubers (Hymen.).

By PHIL RAU, St. Louis, Mo.

The two species of the mud-daubing wasps, *Sceliphron* (*Pelopoeus*) *caementarium* and *Chalybion coeruleum* certainly have two generations a year and perhaps three.

If we gather the nests during the winter, the young under natural conditions, never emerge before May or June. They hibernate in the prepupal stage, and while their life cycle is long, from September or even August, until June, they pass through the same development as the summer brood. There is no apparent difference between the adults that have gone through the long and the short periods of development. We have never found any of these insects hibernating as adults, nor have we ever seen an adult after the first of October.

August is usually the dividing line of the year. Nests taken in the early part of August give forth their adults in the same or in the following month; those taken in the latter part of the month give forth their adults the next year in May or June. The table below is compiled from notes on nests taken at this critical period: